

## CLAIMS

1. Electronic and mechanical device, integrated into watches or wrist bands,  
displaying solar and lunar ephemeris at the planet scale, characterized in that it offers several  
5 visualization possibilities (Fig. 1 & 2):

the first, imaged, displays all along the year the evolution of the duration of the day  
and of the night according to solar or legal time on an LCD display (1), the second possibility,  
with digital display, displays on the window (2) the sunset time only,

finally, in order to give the watch a complete astronomical character, a mechanical or  
10 electronic part displays the phases of the moon at the scale of the two hemispheres (Fig. 3 &  
4),

the wrist band being able to serve as support for some complications.

2. Device according to claim 1, characterized in that the imaged solution, without any  
number, is obtained via the circular LCD screen (1) placed at the periphery of the 24 hour dial  
15 with a dark portion representing the night extending on both sides of midnight at regular  
intervals of 5 minutes, but at irregular day intervals, as a function of these 5 minutes.

3. Device according to claim 2 characterized in that the 24 hour dial has each hour  
divided in 12 intervals by 6 bars thickened to the dimension of the spaces. As a result, the 12  
intervals are represented by 6 black spaces alternated with 6 white, the whole being now very  
20 legible and visible.

4. Device according to claims 1 and 2 characterized in that the system, which enables  
the microprocessor to place and keep every day the image of the night within the programmed  
limits, implicates the symbol of a parallel (60°N) and the day's date (1.1), these two pieces of

information implicating a third one: the sunset time, on that day on that parallel, if at noon in that location the sun is at its zenith. This time schedule, immutable for centuries, is transmitted by the decoder toward the microprocessor via a code.

5        5. Device according to claim 4 characterized in that there are 144 code numerals, synonymous to the 5 minute time periods, in order to be able to satisfy the ephemeris at the polar circle. The code 0 representing 24 hours; the code 12, twelfth interval, 23:00 on the sunset side and 01:00 on the sunrise side; the code 96 = 16:00 and 08:00, the sunrise being placed automatically in full symmetry with the sunset, at the solar time.

10       6. Device according to claim 1 characterized in that the time schedules dictated by the symbol of the selected parallel give the exact time only at the intersection of that parallel and the time reference meridian. For any other location, the difference shown between the display on the screens and the reality of a real sunset must be corrected by the lateral pressure push button (4)

15       for example, to add 30 minutes, an extended pressure triggers the process, 6 short hits toward noon provide the correction, a last extended pressure confirms it.

The corrections to adapt to legal time are operated with the same push button. But, after a first, deep push, then 12 short pushes toward noon, this operation is of the developing type, interrupting the symmetry between sunrises and sunsets (Fig. 2).

20       7. Device according to claim 1 characterized in that, in order to have in the southern hemisphere the same evolution toward a “new moon” but in an aspect as seen from a mirror, it is necessary, at each passage across the equator, to reverse the rotation direction of the black double cache of Fig. 3 through the winding mechanism (5), by pulling it or pushing it, then by

screwing or unscrewing it to go directly from the North phase to the South phase, or reciprocally. As on Fig. 3, pass directly from phase 9 to phase 13 or from phase 12 to 10.

8. Device according to claim 1 characterized in that, on prestige watches, which have no interest to be changed or charged, it is envisioned to include some complications into the wristbands which are easily adaptable.